



NOTICE OF PROPOSED AMENDMENT (NPA) No 2008-05

**DRAFT DECISION OF THE EXECUTIVE DIRECTOR OF THE EUROPEAN AVIATION
SAFETY AGENCY**

**AMENDING
DECISION NO. 2003/2/RM OF THE EXECUTIVE DIRECTOR OF THE EUROPEAN
AVIATION SAFETY AGENCY
of 17 October 2003 on
certification specifications, including airworthiness codes and acceptable means of
compliance, for large aeroplanes (« CS-25 »)**

"Flight in Icing Conditions"

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A. Explanatory Note

I. General

1. The purpose of this Notice of Proposed Amendment (NPA) is to envisage amending Decision 2003/2/RM of the Executive Director of 17 October 2003¹. The scope of this rulemaking activity is outlined in ToR 25.008 with specific focus being defined in CRD 16/2004 Supplement, and is described in more detail below.
2. The Agency is directly involved in the rule-shaping process. It assists the Commission in its executive tasks by preparing draft regulations, and amendments thereof, for the implementation of the Basic Regulation² which are adopted as "Opinions" (Article 19(1)). It also adopts Certification Specifications, including Airworthiness Codes and Acceptable Means of Compliance and Guidance Material to be used in the certification process (Article 19(2)).
3. When developing rules, the Agency is bound to following a structured process as required by Article 52(1) of the Basic Regulation. Such process has been adopted by the Agency's Management Board and is referred to as "The Rulemaking Procedure"³.
4. This rulemaking activity is included in the Agency's rulemaking programme for 2008. It implements the rulemaking task 25.008(c).
5. The text of this NPA has been developed by the Agency. It is submitted for consultation of all interested parties in accordance with Article 52 of the Basic Regulation and Articles 5(3) and 6 of the Rulemaking Procedure.

II. Consultation

6. To achieve optimal consultation, the Agency is publishing the draft decision of the Executive Director on its internet site. In accordance with Article 6(5) of the Rulemaking Procedure, the Executive Director of the Agency has determined that a reduction in the normal consultation period of 3 months is appropriate in this case. This is based on the knowledge that the issue in question has previously been subject to consultation in CRD 16/2004 Supplement, and that discussions aimed at harmonising changes to 25.21(g) have already taken place between EASA and FAA. Comments should therefore be provided within 2 months.
7. Comments on this proposal should be submitted by one of the following methods:

CRT: Send your comments using the Comment-Response Tool (CRT) available at <http://hub.easa.europa.eu/crt/>

E-mail: Only in case the use of CRT is prevented by technical problems these should be reported to the [CRT webmaster](mailto:CRT_webmaster@easa.europa.eu) and comments sent by email to NPA@easa.europa.eu.

¹ Decision No 2003/2/RM of the Executive Director of the Agency of 17 October 2003 on certification specifications, including airworthiness code and acceptable means of compliance, for large aeroplanes (« CS-25 »).

² Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC. OJ L 79, 19.03.2008, p. 1

³ Management Board decision concerning the procedure to be applied by the Agency for the issuing of opinions, certification specifications and guidance material ("Rulemaking Procedure"), EASA MB 08-2007-03, 13.6.2007.

Correspondence: If you do not have access to internet or e-mail you can send your comment by mail to:
Process Support
Rulemaking Directorate
EASA
Postfach 10 12 53
D-50452 Cologne
Germany

Comments should be received by the Agency **before 10 June 2008**. If received after this deadline they might not be taken into account.

III. Comment response document

8. All comments received in time will be responded to and incorporated in a comment response document ("CRD"). The CRD will be available on the Agency's website and in the Comment-Response Tool ("CRT").

IV. Content of the draft decision

9. After issuance of the CRD 16-2004 on the 28th October 2005 there were several strong reactions which prompted the Agency to reconsider a number of initial responses to the NPA comments. Some comments related to harmonisation with FAA regulation and guidance proposals that were published after the CRD publication. (FAA NPRM 05-10 in November 2005 and guidance material in AC 25.21-1X in February 2006). Following this review a number of responses and subsequently the resulting text of amendments were changed using the following two principles:
 - Where possible harmonise with the FAA final text.
 - Where doubts on the safety level as achieved by the amendments were expressed the safer option was chosen.

One comment⁴ submitted to NPA 16/2004 referred to 25.207 and the inadequacy of the speed margin close to stall in icing conditions. The commenter proposed a change to 25.21(g)(1) to include compliance with CS 25.207(c) and (d) in the landing configuration. This issue had been identified from certification experience subsequent to the publication of NPA 16/2004. In response to this comment, the EASA disposition in CRD 16/2004 Supplement, agreed in principle to the change but proposed that a new NPA, within the existing rulemaking task, be developed to ensure adequate consultation of stakeholders and for coordination with the FAA. This NPA is issued to address the point raised.

The envisaged change to Decision 2007/20/RM is:

10. In Book 1 SUBPART A-GENERAL, revise the text of CS 25.21(g)(1) to include compliance with CS 25.207(c) and (d) in the landing configuration, and thereby ensure that an adequate speed margin between the stall warning speed (V_{SW}) and the stall reference speed (V_{SR}) is maintained.
11. Recent certification experience, obtained during a demonstration in a large aeroplane simulator of operation with accreted ice, has shown the possibility of an aeroplane encountering a hazardous situation during the landing phase of flight. In this situation there may be insufficient manoeuvring margin from the stall for the crew to recover the aeroplane to safe controlled flight without significant loss of height.

⁴ CRD 16/2004 Supplement – Proposal 11 CS 25.207, Comment 1 – CAA-UK

It is thought that discussions in the Flight Test Harmonisation Working Group (FTHWG) during the development of NPA 16/2004 did not identify this concern.

As published in the current CS-25 (Amendment 4), the text of CS 25.207 when certifying for flight in icing breaks the relationship between the stall warning speed (V_{SW}) and the stall reference speed (V_{SR}). This creates the possibility that the stall warning is below V_{SR} and hence the minimum manoeuvring capability that is available in non-icing conditions is now not available in icing conditions.

This situation is of most concern in the landing configuration during an approach to land where the aeroplane could be decelerating and/or descending more rapidly than anticipated due to additional induced drag in the high incidence condition. Any attempt to manoeuvre the aeroplane or further reduce speed would lead to a stall when the ability to trade height for speed is extremely limited.

V. Regulatory Impact Assessment

12. Purpose and intended effect

a. Issue which the NPA is intended to address

The aim is to propose a change to CS-25 to address stall warning margin in icing conditions.

b. Scale of the issue (quantified if possible)

The issue will affect the design and certification of all future large aeroplanes designed for flight in icing conditions. In addition, modifications to existing large aeroplanes may be affected, subject to the provisions of Part 21.101.

c. Brief statement of the objectives of the NPA

To ensure adequate manoeuvrability in the particular case of the landing phase this NPA proposes that the speed margin between V_{SW} and V_{SR} that is required in the non-iced condition also be required for icing conditions.

13. Options

a. The options identified

The identified options for this subject are:

Option 1: Do nothing

Option 2: Change CS-25

b. The preferred option selected (if possible)

The preferred option is to change CS-25. This will ensure that the minimum uniform airworthiness standards contained in CS-25 are sufficiently developed to avoid a potential safety issue and is recorded and known in advance by future applicants for certification.

14. Sectors concerned

This NPA concerns applicants of new Type Certificates or Supplemental Type Certificates with a CS-25 certification basis who want certification for flight in icing conditions.

15. Impacts

- a. All identified impacts
 - i. Safety

Option 1 will not address a known safety issue.

Option 2 will increase the overall safety of the aeroplane by ensuring adequate manoeuvrability in icing conditions in the landing configuration.
 - ii. Economic,

Option 1 - No impact

Option 2 - As the proposed amendment will be applicable only to new aeroplanes or major modifications to existing types, the cost associated with this change is deemed to be non-significant in relation to other certification costs.
 - iii. Environmental

No environmental impact has been identified.
 - iv. Social

No social impact has been identified.
 - v. Other aviation requirements outside EASA scope

A difference will exist between CS-25 and FAR Part 25. This has been discussed with the FAA and it is believed that a common understanding can be reached. This proposal will be discussed with the FAA and it is expected that the consultation of European stakeholders will produce a final text that could be supported by the FAA.
- b. Equity and fairness in terms of distribution of positive and negative impacts among concerned sectors.

No equity and fairness issues have been identified.

16. Summary and Final Assessment

Option 2, change to CS-25, is considered to have a positive safety benefit with no economic impact. Harmonisation with FAA will be addressed as part of this proposal. Option 2 is therefore adopted.

B DRAFT DECISION

The text of the amendment is arranged to show deleted text, new text or new paragraph as shown below:

- deleted text is shown with a strike through: ~~deleted~~
- new text is highlighted with grey shading: **new**
-

Indicates that remaining text is unchanged in front of or following the reflected amendment.

Article 1

Decision 2007/20/RM of the Executive Director of the Agency of 20 December 2007 is hereby amended as follows:

Book 1**SUBPART B FLIGHT****CS 25.21 Proof of compliance**

....

(g) The requirements of this subpart associated with icing conditions apply only if the applicant is seeking certification for flight in icing conditions.

- (1) Each requirement of this subpart, except CS 25.121(a), 25.123(c), 25.143(b)(1) and (b)(2), 25.149, 25.201(c)(2), ~~25.207(c) and (d)~~, and 25.251(b) through (e), must be met in icing conditions. **CS 25.207(c) and (d) must be met in the landing configuration in icing conditions but need not be met for other configurations.** Compliance must be shown using the ice accretions defined in Appendix C, assuming normal operation of the aeroplane and its ice protection system in accordance with the operating limitations and operating procedures established by the applicant and provided in the Aeroplane Flight Manual.
- (2)